

REMARKS

Claims 1-6 were examined in the Office Action mailed April 25, 2008.

The following objections and rejections are currently pending:

- Objection to Fig. 10 as not labeled "Prior Art."
- Objection to Figs. 3-5 for failure to show the relationship between elements described in the Specification.
- Objection to the Title as not descriptive.
- Objection to the Abstract for use of claim language.
- Objection to the Specification for omission of a reference number, and use of the symbol "//".
- Rejection of claims 1-6 under 35 U.S.C. § 112, second paragraph, as indefinite due to several informalities.
- Rejection of claims 1-6 under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 6,935,172 to Horie, *et al.* ("Horie") in view of U.S. Patent No. 6,769,298 to Matsumura *et al.* ("Matsumura").

1. **The Drawing Objections.** The Applicants are requesting Examiner approval of the addition of the label "PRIOR ART" to Fig. 10, as shown on the Replacement Sheet submitted herewith.

With regard to the objection associated with Figs. 3 and 5, the Applicants respectfully submit that no drawing changes are required, as the two circuits are not interconnected. There are two separate circuits on the measuring element 1 and associated circuit board 26, with one circuit maintaining supply of current to heating element 5 (described at Specification 9:19-13:5), and one circuit for flow rate detection which detects a change in air temperature caused by heating of air flowing across heating element 5 (the change in air temperature being detected in a separate circuit containing upstream temperature measuring resistor 9 and

downstream temperature measuring resistor 10, as described at Specification 13:6-14:20). Because there is no electrical connection or interaction between these circuits, there is no such connection to illustrate in Fig. 3 or Fig. 5. Accordingly, reconsideration and withdrawal of objection to Figs. 3 and 5 is respectfully requested.

2. The Specification Objections. The Applicants have amended the Title to read "THERMAL FLOWMETER FOR MEASURING A FLOW RATE OF FLUID," and have amended the Abstract to eliminate the "comprises" and "means" terms. In addition, the reference label "8" has been inserted on page 8 in accordance with the Examiner's helpful suggestion.

As to the use of the symbol "//", reconsideration and withdrawal of the pending objection is respectfully requested on the ground that this symbol is a well-known electrical engineering symbol, where "//" is used to denote a combined resistance of resistors connected in parallel, *e.g.*, "R1//R2" represents the parallel resistance equation " $1/(1/R1 + 1/R2)$." The Applicants submit that this symbol is readily understood by those of ordinary skill in the art, and thus no amendment to the Specification is necessary.

3. The § 112 Rejections Have Been Addressed. The Applicants have amended the claims to address each of the pending § 112 rejections, with claim 1 amended to correct "detecting" to "measuring," and claims 2-3 and 5-6 amended to address the identified antecedent basis issues.

As to the objection to claim 4 for use of "flow rate detecting means," the Applicants have amended the claim to refer to resistors, for example resistor 30

in Fig. 16 and resistor 31 in Fig. 19, which have a resistance temperature coefficient different from the temperature coefficient of the first and second temperature measuring resistors. Temperature coefficient-related limitations have been removed from dependent claims 5 and 6.

In view of these amendments, reconsideration and withdrawal of the pending § 112 rejections is respectfully requested.

4. The Claims Are Patentable Over the Cited References. The Applicants respectfully traverse the rejection of claims 1-6 under § 103(a) as unpatentable over Horie and Matsumura on the ground that these references do not teach or suggest all of the features of the present invention recited in the pending claims.

The Present Invention. According to the present invention, the error caused by the temperature characteristics of the detected flow rate signal is corrected by using the temperature sensor which detects a temperature in the casing.

The inventors observed that corrected values were changed whether or not the temperature of an intake pipe wall is equal to the temperature of the fluid. The temperature sensor detects a middle temperature value between the temperature of the intake pipe wall and that of the fluid because the temperature sensor detects the temperature in the casing. Thus, it is not determined whether or not the temperature of the intake pipe wall is equal to that of the fluid. Accordingly, if the error of the signal is corrected

indiscriminately on the basis of the detected temperature in the casing, the error of the signal may not be correctly adjusted.

In the present invention, the heat control means changes the difference between the temperature of the fluid and that of heating resistor (ΔT_h) in response to the temperature of the fluid. The detection sensitivity of the flow rate can be changed by changing the temperature difference ΔT_h . This means that the value of error caused in the detected flow rate voltage can be changed in response to the temperature of the fluid. In the present invention, an error is purposely added to the detected flow rate voltage by changing the ΔT_h in response to the temperature of the fluid. Thus, regardless of whether or not the temperatures of the intake pipe wall and that of the fluid are equal with each other, the error value of the signal is not affected.

The Cited References. The Horie reference is cited as disclosing that the temperature difference between the fluid and heating resistor is changed in response to the temperature of the fluid. Horie discloses only that the temperature of the heating resistor is lowered in response to the flow rate of the fluid. *See, e.g.*, Horie at 8:49-9:25; Fig. 4. However, Horie fails to disclose maintaining a desired temperature difference between the heating resistor and the air temperature – ΔT_h – in response to the temperature of the fluid.

For its part, Matsumura notices the temperature dependence error in a signal processing system, so that the temperature dependence error can be corrected by the tip temperature sensor installed in the signal processing system. However, Matsumura fails to teach or suggest that corrected values are changed

whether the temperature of an intake pipe wall is equal to the temperature of the fluid or not. One of ordinary skilled in the art therefore would not discern a teaching or suggestion that the error value of the signal is controlled in response to the temperature difference ΔT_h .

As a result of the above, the combination of Horie and Matsumura would not result in the present invention. According to Horie, the temperature of the heating resistor is changed in response to the flow rate of the fluid – not the temperature of the fluid – so that the error value of the signal cannot be controlled in response to the temperature dependence error. Thus, if Horie and Matsumura were to be combined, the error value of the signal cannot be controlled in response to the temperature dependence error, and a suitable error correction cannot be executed both when the temperatures of the intake pipe wall and that of the fluid are equal with each other and when they are not equal.

Because no combination of the Horie and Matsumura references would result in the present invention, the Applicants submit that claims 1-6 are patentable over these references under § 103(a). Reconsideration and withdrawal of the pending § 103(a) rejections is respectfully requested.

CONCLUSION

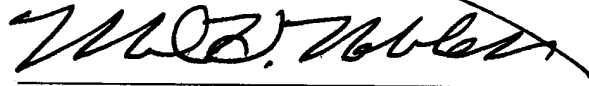
In view of the foregoing amendments and remarks, the Applicants respectfully submit that claims 1-6 are in condition for allowance. Early and favorable consideration and issuance of a Notice of Allowance for these claims is respectfully requested.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #056205.57746US).

Respectfully submitted,

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